REMARKS

The Examiner objected to the listing of references in the specification as not being a proper information disclosure statement. In response, the Applicant has attached hereto an Information Disclosure Statement in accordance with 37 C.F.R. 1.98(b). Applicant advises that a copy of GB 1,453,727 is enclosed with the Information Disclosure Statement and that this reference is the UK counterpart of DE 2,356,097.

The Examiner objected to the drawings under 37 C.F.R. 1.83(a) stating that the drawings must show every feature of the invention specified in the claims. Specifically, the Examiner is requiring that the drawings must show the lip seal being formed from "a relatively rigid elastic material" as set forth in claims 4 and 11. In response, Applicant encloses herewith a proposed Fig. 3 to illustrate that the lip seal is formed from a relatively rigid elastic material. Applicant will submit a formal drawing and related amendment to the specification, when the Examiner approves the proposed drawing. The Examiner also required that a proposed drawing change be submitted to illustrate that the inner edge of the lip seal has "the form of a selvage" as set forth in claim 7. In response, Applicant has canceled claim 7.

The Examiner objected to the Specification inasmuch as it does not contain an Abstract of the Disclosure and because of a number of informalities. In response, Applicant is providing herewith a substitute specification that includes an abstract, has the lines 4-5 on page 3 deleted (i.e. references to the claims) and in

which the term "centre" has been replaced with the term - - center - -. Applicant confirms that no new matter has been added to the substitute specification.

The Examiner objected to claims 1-2 because it is believed that the phrase - - distance from - - should be inserted between the terms "the" and "inner" in line 7 of claim 1, to better describe the invention. The Examiner further suggested that the term "rim" in line 2 of claim 2 should be replaced with the term - - bead - - . In response, Applicant has deleted the phrase "... in that the inner part of the internal seal proximal to the centre of the rim has a circumference which is slightly smaller than the circumference of the rim at this location" in response to the rejections under 35 U.S.C. 112, second paragraph. The amendment to claim 1 therefore addresses the Examiner's objection to the claim at the same time. The Applicant has amended claim 2 by replacing the term "rim" with the term - - bead - - as this does conform to features of the invention set forth in claim 1. Applicant therefore respectfully submits that the Examiner's objections to claims 1 and 2 have been overcome.

The Examiner rejected claims 1-12 under 35 U.S.C. 112, second paragraph, in that it is unclear from claim 1 what is actually being claimed by the phrase "the inner part ... this location" in lines 7-9 of the claim. In response, Applicant has deleted the referenced phrase from claim 1 as suggested by the Examiner. **The Examiner also rejected claims 3 and 10 as being indefinite due to the fact that it is unclear whether or not the "underlying supporting surface" of the lip seal is a separate element of the invention.** In response, Applicant has deleted the phrase "underlying supporting surface" in claims 3 and 10 and has replaced it with the phrase

- - the rim - -. Applicant submits that this amendment clarifies the claimed element and thus overcomes the indefiniteness rejection of claims 3 and 10. **The Examiner also rejected claim 6 as being indefinite due to the fact that it is unclear whether "the inner part" of the lip seal is the same element as the "inner edge" as set forth in claim 1 or is an entirely separate element of the invention.** Applicant submits that the deletion of the phrase on lines 7-9 of claim 1, which phrase included the term "inner edge", has addressed the possible confusion between "the inner part" and "the inner edge". Applicant therefore respectfully requests that the rejection under 35 U.S.C. 112, second paragraph with respect to claims 1-12 be withdrawn.

The Examiner rejected claims 1-3, 6, 10 and 12 under 35 U.S.C. 102(b) as being anticipated by Roudebush. The Examiner stated that Roudebush shows a pneumatic tire B having a tire bead 11 in sealing abutment with a rim seat located inwardly from a rim edge 2 on each side of an undivided rim. An internal lip seal 26 extends along the rim seat and inwardly from the tire bead 11. An outer part 27 of the lip seal 26 is proximate to the rim edge 2, and is fastened to the tire bead 11 a certain distance from the end of the bead 11. An inner part of the lip seal 26 is proximate to the center of the rim. The lip seal 26 is adapted to seal at least the region where the tire bead 11 abuts the rim seat, through the influence of pneumatic pressure of air inside of the tire B. Furthermore, the Examiner stated that the outer part 27 of the lip seal 26 is glued to the tire bead 11 (see column 5, lines 60-64). The lip seal 26 is formed of a material (namely soft rubber) having a softness that allows the entire underside of the seal 26 to line along the entire extension of the seal 26. The lip seal 26 has a skirt-like

configuration so that the inner "part" of the lip seal 26 may rest loosely on the rim. **In response,** Applicant submits that the sealing means of Roudebush is the sealing ring C. This sealing ring C is continuous, flexible and incompressible. Sealing ring C extends along the rim A from one tire bead 11 to the other tire bead 12. The Examiner refers to the component numbered as 26 as a lip seal. Roudebush discloses that lip seal 26 is a thin circumferential layer of soft rubber which is vulcanized or otherwise bonded to the beads 11 and 12 (column 5, lines 60-70). As can be seen from Fig. 5 of Roudebush, the entire width of lip seal 26 abuts and is connected to the tire bead 11. The serrations on the ends of the sealing ring 25 deform the soft rubber of lip seal 26 and in so doing the tire is sealed. Applicant respectfully submits that it is air pressure in the tire that seals the region of the abutment of the tire bead with the rim when lip seal 26 is provided, but is rather the pressure of the serrations of the sealing ring 25 contacting the lip seal 26. Applicant submits that Roudebush utilizes either the sealing ring 15 engaging the bead 11 or the sealing ring 15 engaging the lip seal 26. Roudebush does not disclose that the tire can function with only the lip seal 26 - in fact, Roudebush discloses that this component is not really necessary (column 5, lines 71-74). Applicant further submits that if the Roudebush device only had lip seal 26 attached the tire bead having only an inner edge that rests on the rim, the tire would not be sealed under the adverse operating conditions that are described by Applicant. As may be seen from Fig. 5, the inner edge of the lip seal 26 contacts the rim. If the Roudebush tire was substantially deformed, as would be the case if the tire was utilized in forestry service, the deformation of the tire would most likely cause a gap to open up between the inner edge

of the lip seal 26 and the rim A. This gap would allow air to escape from the tire. Roudebush does disclose that a thin circumferential rubber strip 27 may be provided, the strip 27 being bonded to the sealing ring 15 and to one bead 11 of the tubeless tire (column 6, lines 5-10). Rubber strip 27, however, does not rest on the rim (A), it rests on the sealing ring 15. Additionally, Roudebush discloses in column 5, lines 71-74 that strip 27 is preferably omitted and is unnecessary to insure a tight seal. The only component that Roudebush discloses as being necessary and essential for sealing the tire is the sealing ring 15. Applicant, on the other hand, has recognized that the only sealing means needed is a small, flexible circumferential lip seal. That lip seal has a width having an outer part that is connected to the tire bead and an inner part that rests directly on that part of the rim that lies between the tire beads. The inner part of the lip seal extends towards the axial centerline of the rim, and terminates prior to the axial centerline of the rim. The inner part does have only an edge that contacts the rim (as is shown in Roudebush) and that will lift off the rim section if the tire is deformed. Applicant has amended claim 1 to indicate that the lip seal has a width that has an outer and an inner part and that the outer part is attached to the tire bead and the inner part rests on the rim and extends towards and terminates prior to the axial centerline of the rim. In order for anticipation to be found under Section 102(b), the anticipated reference must have each and every element of the claim. *Row v. Dror*, 42 USPQ 2d 1550, 1553 (Fed. Cir. 1997) (quoting *Kloster Speedsteel AB v. Crucible, Inc.*, 230 USPQ 81, 84 (Fed. Cir. 1986))

"A prior art reference anticipates a claim only if the reference

discloses, either expressly or inherently, every limitation of the claim. . . . "[A]bsence from the reference of any claimed element negates anticipation."

Applicant submits that Roudebush does not show a lip seal 26 that has a width defining an outer part and an inner part, with the outer part being attached to the tire bead and the inner part resting on the rim and extending toward and terminating prior to the axial centerline of the rim. Roudebush shows a lip seal 26 that is attached along its entire width to the tire bead and the edge of the lip seal abuts the rim. Applicant therefore respectfully submits that Roudebush does not disclose each and every element of the claimed invention. Applicant therefore requests that the rejection of claim 1-3, 6, 10 and 12 under 35 U.S.C. 102(b) as being anticipated by Roudebush, be withdrawn.

The Examiner rejected claims 1-3, 6, 10 and 12 under 35 U.S.C. (102(b) as being anticipated by Bowman (WO 98/21056). Specifically, the Examiner stated that in Figures 3-4 Bowman shows a pneumatic tire 20A having a tire bead 28 in sealing abutment with a rim seat 32 located inwardly from a rim edge 54 on each side of an undivided rim 24. An internal lip seal 44 extends along the rim seat 32 and inwardly from the tire bead 28. An outer part 52 of the lip seal 44 is proximate to the rim edge 54 and is fastened to the tire bead 28 at a certain distance from the end of bead 28. An inner part of the lip seal 44 is proximate to the center of the rim 24. The lip seal 44 is adapted to seal at least the region where the tire bead 28 abuts the rim seat 32, through the influence of pneumatic pressure of air inside the tire 20A. **In response**, Applicant submits that the tire disclosed by Bowman includes a band (identified by the Examiner

as a lip seal 44) that extends from one tire bead to the other. The tire is designed for applications such as tubeless bicycle tires where there is a tendency for air to leak out of the tire through spoke holes. Bowman therefore provides a seal that extends across the entire gap between the tire beads and therefore provides a built-in, inner tube-like retaining area within the tire casing. As is stated in the Abstract of the Bowman reference:

> "The tubeless tire (20A) includes a band (44) for closing the gap between the beads (28) of the tire to thereby provide an annular enclosed portion (56) that functions in a manner similar to an inner tube. "
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> (Emphasis added by Applicant)

Both ends of the band of the Bowman tire are adhesively secured to either the tire casing or the tire beads. The Bowman tire does not have an inner part of the lip seal that extends only partially into the gap between the tire beads, i.e. toward the axial centerline and terminating prior to the centerline as is disclosed and claimed in the present application. Applicant's lip seal does not seal the gap between the tire beads. In order for the Bowman reference to anticipate claim 1, it must show each and every element of the claim. Bowman does not disclose a tire band/lip seal that has an inner part that extends along the rim toward the axial centerline of the rim and terminating prior to that centerline. Applicant therefore respectfully submits that as Bowman does not show each and every element of the claim and that the reference therefore does not anticipate Claim 1. Applicant respectfully requests the withdrawal of the rejection of claims 1-3, 6, 10 and 12 under 35 U.S.C. 102(b) as being anticipated by Bowman.

The Examiner rejected claim 4 under 35 U.S.C. 103(a) as being unpatentable

over Roudebush in view of Powers. The Examiner stated that Roudebush contains all the limitations as set forth in paragraph 14 of the Action, but does not show the lip seal formed from a relatively rigid elastic material. However, the Examiner contends that Powers teaches the use of a lip seal 11 formed of a relative rigid elastic material, due to the fact that the edge portions (8-9) of the lip seal 11 contain reinforcing elements (16-17). The Examiner therefore submitted that it would have been obvious to provide the lip seal of Roudebush with reinforcing members to create a relatively rigid elastic lip seal, for the purpose of reducing wear of the seal and providing a more resilient seal between the tire bead and the rim. **In response,** the Applicant firstly disputes that Roudebush contains all the limitations as set forth in paragraph 14 of the Action, for the reasons set out above. Roudebush does not show a lip seal 26 that has a width having an outer part and an inner part, with the outer part being attached to the tire bead and the inner part resting on the rim and extending toward and terminating prior to the axial centerline of the rim. Powers discloses in column 2, lines 23-27:

> "Said band is comprised of air-impervious elastic rubber or rubber-like material such as Butyl and has reinforcing members 16 and 17 in the form of flexible, metallic hoops embedded in or hermetically sealed within its oblique outer walls."

Applicant submits that Powers does not teach that the lip seal is comprised of "a relative rigid elastic material". Powers teaches that the lip seal should be rubber with metal reinforcements. Applicant respectfully submits that the metal reinforcements of Powers would prevent the lip seal from behaving in an elastic manner and would substantially

prevent the inner part of the lip seal i.e. the portion of the lip seal not attached to the tire bead, from flexing in response to the influence of the pneumatic pressure in the tire. Applicant utilizes a single material that is still sufficiently flexible to enable at least a portion of the inner part to rest on the rim. Applicant's device, as referenced on page 3, lines 24-27, requires that at least the inward part of the lip seal, i.e. the inward part of the inner part, will lie sealingly against the rim. While Applicant allows for the lip seal be made of a relatively rigid material, it should still flex and at least partially rest sealingly against the rim. Applicant submits that Powers therefore does not teach a lip seal having relatively rigid elastic material - he teaches that the lip seal should be rigid in nature in the very area that Applicant's device requires that the lip seal be sufficiently flexible to seal the tire in response to the air pressure within the tire. Applicant therefore submits that combining the teachings of Powers and Roudebush would not result in the presently claimed invention. A device utilizing the teachings of the two references would result in a metal-reinforced lip seal 26 that lies in abutting contact with the tire bead. This type of lip seal would be more likely to allow for the creation of a gap between the tire bead and rim when the tire deforms in response to traveling over rough terrain. Applicant respectfully submits that the combining of these two references teaches away from the present invention. Applicant therefore respectfully requests the withdrawal of the rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over Roudebush in view of Powers.

The Examiner rejected claims 5, 7-9 and 11 under 35 U.S.C. 103(a) as being unpatentable over Roudebush. The Examiner stated that while Roudebush does not

specify the distance from the edge of the tire bead from which the outer part of the lip seal is fastened, it would have been obvious to one of ordinary sill in the art to fasten the outer part of the lip seal a suitable distance from the edge of the tire bead in order to provide a complete seal between the tire and rim. **In response,** Applicant respectfully disagrees with the Examiner's position that Roudebush does not specify the distance from the edge of the tire bead from which the outer part of the lip seal is fastened. In column 5, line 60-64, Roudebush states:

> "As shown in Figs. 1, 2 and 5, the inner faces of the beads 11 and 12 are provided with thin circumferential layers 26 of soft rubber which are vulcanized or otherwise bonded to the remaining portion of the inextensible beads."
>
> (Emphasis added by Applicant)

Applicant respectfully submits that Roudebush teaches that the lip seal 26 should be vulcanized or otherwise bonded to the tire beads along its entire width. Roudebush requires this because the serrations of the sealing ring 25 are designed to compress the lip seal 26. If the lip seal 26 was not bonded along its entire width, it could have a tendency to break away from the tire beads if compressed in an area below the adhesion point. Even the sealing strip 27 proposed by Roudebush is "adhered throughout its length to the tire" (column 6, line 11). Applicant therefore submits that it would not be obvious to one skilled in the art consulting the reference to determine that bonding the lip seal to the tire bead in the manner proposed by the Applicant would be acceptable. In response to the rejection of claims 7-9 and 11, claim 7 has been canceled as previously discussed with reference to the drawings. With reference to claims 8-9 and 11, Applicant respectfully submits that because claim 1 is not obvious

with respect to Roudebush and claims 8-9 and 11 depend from claim 1, Applicant submits that claims 8-9 and 11 are not obvious on these grounds. Applicant therefore respectfully requests that the withdrawal of the rejection of claims 5, 8-9 and 11 under 35 U.S.C. 103(a) as being unpatentable over Roudebush.

The Examiner rejected claim 5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bowman. The Examiner stated that Bowman contains all the limitations as set forth in paragraph 15 of the Action, but does not specify the distance from the edge of the tire bead from which the outer part of the lip seal is fastened. The Examiner therefore contends that it would have been obvious to one of ordinary skill in the art to fasten the outer part of the lip seal a suitable distance from the edge of the tire bead in order to provide a complete seal between the tire and the rim. **In response,** Applicant disagrees, as argued above, that Bowman contains all the limitations as set forth in paragraph 15. Applicant submits that Bowman teaches away from the present invention, specifically from any lip seals as this type of seal could not seal the entire gap between the tire beads - a prerequisite of the Bowman reference. Furthermore, Applicant respectfully submits that Bowman also teaches that the entire section of the band 44 that contacts the tire bead be bonded to the tire bead. This can be seen from page 5, lines 2-6 of Bowman, where it is stated:

> "Tire 20A includes a band 44 that is bonded onto the interior surface 48 of the tire at bonded areas 52. The band 44 and the bonded areas 52 seal the gap between the beads 28 and thereby cause an interior portion 56 to be fully enclosed."

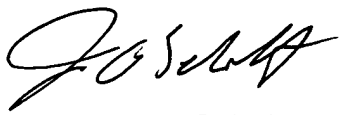
and with reference to Figs.1-3 where it is seen that bonded areas 52 reference the

entire section of the tire bead that lies in contact with band 44. Applicant therefore respectfully submits that it would not be obvious to one of ordinary skill in the art to only bond the tire bead and band together at a distance inwardly from the edge of the band. Applicant therefore respectfully submits that claim 5 is not obvious with respect to Bowman. Applicant submits that as claim 1 is not obvious with respect to Bowman, neither are claims 8-9. Applicant therefore respectfully requests the withdrawal of the rejection of claim 5 and 8-9 under 35 U.S.C. 103(a) as being unpatentable over Bowman.

Applicant therefore respectfully requests reconsideration of claims 1-12. Applicant submits that all 12 claims are patentably distinct from the prior art and earnestly solicits allowance of the same.

Respectfully submitted at Canton, Ohio this 5th day of November, 2003.

SAND & SEBOLT



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Enclosures IDS + 5 References
IDS fee of $180
Proposed Drawing - Fig. 3
Substitute specification

Docket No. 1987-A-PCT-US